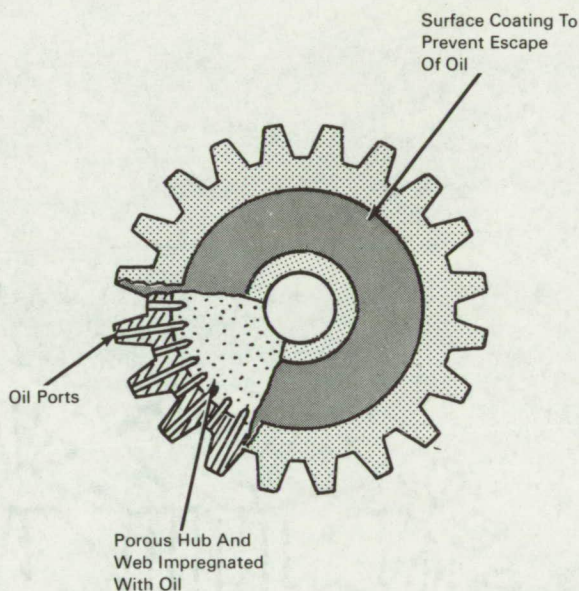


NASA TECH BRIEF



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Unique Gear Design Provides Self-Lubrication



The problem: To provide a reliable automatic means for replenishing gear mechanism lubricants that can be expected to dissipate in the harsh environment of space or through extended operation in an atmospheric environment.

The solution: A composite gear configuration in which the center or hub section consists of a porous, oil-impregnated material and the outer or toothed section has radially drilled passages to cause the oil to gradually flow to the surfaces of the gear teeth.

How it's done: The hub and web of the gear are made of a porous material that is impregnated with lubricating oil under extreme pressure so that the whole is heavily laden with oil. An outer ring contain-

ing the gear teeth is rigidly fastened to the web and all exposed surfaces of the web and hub are sealed with an oil-impervious material. A series of small passages is drilled radially inward through the gear teeth and slots deep enough to achieve a slight penetration of the oil-impregnated web. Rotation of the gear generates centrifugal force that causes oil in the porous hub and web assembly to flow through the drilled passages to the gear tooth surfaces.

Notes:

1. Rate of flow of the lubricating oil can be regulated by the number and size of the drilled passages. Design can contemplate such things as operating speed and gear loading.

(continued overleaf)

2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Jet Propulsion Laboratory
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Reference: B65-10366

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated by NASA.

Source: Francis J. Winiarski of
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